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# Integrating PLAINS NATIVES into Captivity

***The discriminating and patient gardener can be rewarded with a long-lived, low-maintenance plant when opting for a Plains native.***

The Great Plains, or "The Great American Desert," is a land of extremes — spanning from the eastern slopes of the Rocky Mountains east to the mixed, deciduous forests and tallgrass prairies of the interior lowlands. If we use this description to define the Great Plains, it would include northern Texas, Oklahoma, Kansas, Nebraska and the Dakotas; north into Canada as the heart; and eastern Colorado, Wyoming and Montana as the western edge and the Missouri Valley as the eastern edge.

The varying topography and climatic conditions, as well as the blending of Eastern and Western species, has led to the diversity of plant life that can be found on the Great Plains — from near-desert plants to wetland species. Nearly all Eastern tallgrass and mixed-grass prairies have been lost to farmland and invasive trees, and the few that still exist are at risk. Fortunately, much of the Western shortgrass prairies have been left relatively intact due to their low rainfall and poor soils.

Tallgrass and shortgrass prairies — just by their name — lend themselves to the perception that the primary plants found on the Plains consist mostly of grasses. This is far from true. *Andropogon gerardii* (big bluestem) and *Sorghastrum* (Indiangrass) once might have dominated large portions of the tallgrass prairies, but they were not alone. Instead, the area is infiltrated by a sea of composites — from asters to goldenrods and a host of other broadleaf forbs — creating a kaleidoscope of colors throughout the growing season. The shortgrass prairie might be poorer in fertility and rainfall, but it's not poorer in diversity. This area contains many infiltrators from the tallgrass prairies from the east, as well as mountains and high plateaus from the west.

Although the diversity of the shortgrass prairies has been diminished in distribution, much of it still can be found. One of my favorite areas for exploring — other than the Badlands of South Dakota — are the Sandhills of north central Nebraska, some of the largest fixed sand dunes in the world. A tremendous amount of diversity still exists in this area, although, at times, it's overgrazed by livestock and has suffered from severe droughts during the last century. Within just a few yards, you can find sand cherries (*Prunus pumila* var. *besseyi*), seedpods of *Penstemon grandiflorus* (large beardtongue), colonies of goldenrods (*Solidago*), *Dalea villosa* (silky prairie clover), snakeroot (*Liatris punctata*), the cone of an *Echinacea* (coneflower) and *Amorpha canescens* (lead plant). The kaleidoscope of colors continues to change during every season.


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*Baptisia minor* (syn. *B. australis* var. *minor*) is a true performer in the Plains native garden, providing luscious growth and color for decades.

Considering the plant varieties found in this region of the country, are there any out there worth bringing into cultivation? If so, how do you get these plants into cultivation? Will they perform in a garden situation? Will they tempt the consumer at the garden center?

**Cultivation potential.** Currently at Bluebird Nursery Inc., Clarkson, NE, we are growing more than 138 genera of US natives, many of which are Plains natives — from wetland plants, such as *Pontederia cordata* (pickerelweed) and *Asclepias incarnate* (swamp milkweed), to drought-tolerant plants, such as *Coryphantha* (syn. *Escobaria*) *vivipara* (ball cactus) and *Amorpha* (false indigo). Hopefully, many of these will continue to have commercial appeal and pave the way for additional native plants, along with their variations (cultivars). As the cost of fertilizers and water continue to increase, the need for xeric plants should continue to rise, with shortgrass prairie natives being ideal candidates to fill that need.

Many of the best Plains natives are slow to mature and do not look good in a container as an immature plant, which reduces their impulse appeal at garden centers. Also, you have to ask, "Will the plant *perform* in the garden?" Many of the Plains natives are adapted to severe climatic variables and competition. When this competition is reduced in a garden situation, some have a tendency to become floppy if not placed properly (for example, *Rudbeckia missouriensis* [Missouri black-eyed Susan] and *Liatris punctata* [blazing star]). But, with education, the discriminating and patient gardener can be rewarded with a long-lived, low-maintenance plant when opting for a Plains native.

**The pick of the Plains.** Some of my favorite Plains natives include *Baptisia minor* (syn. *B. australis* var. *minor*; blue wild indigo), which is a true performer in the garden, with spikes of lilac to blue flowers as the plant emerges in the spring. By summer, 18- to 24-inch, blue-gray mounds of foliage appear with contrasting brown seedpods developing late summer through fall. Though slow to mature — taking two to three years to flower from seed — *B. minor* will continue to perform for decades — if not centuries — unless it's overgrown by trees. Even during the driest of years, established plants show no signs of drought stress. We are currently working on a seed strain that will consistently produce deep blue flowers.

*Baptisia minor* (syn. *B. australis* var. *minor*) can grow as high as 18 to 24 inches and produces blue-gray mounds of foliage with contrasting brown seedpods developing late in the summer through fall.

*Oenothera macrocarpa* 'Comanche Campfire' displays attractive, ruby stems and wavy, silver leaves.

*Sphaeralcea coccinea* (red false mallow) is a creeping groundcover topped with coral, red-orange flowers during midspring and goes nearly dormant during the summer.

*Coryphantha* (syn. *Escobaria*) *vivipara* is a great pick for the trough or rock garden.

*Oenothera macrocarpa* subsp. *fremontii* is long-living and fully hardy in Zone 4.

Two other Plains *Baptisia* of interest include *B. bracteata* (false indigo), which is a small, hairy *Baptisia* with cream to light yellow flowers on a drooping raceme, and *B. lactea* (milky wild indigo), a large, vase-shaped plant with white flowers.

*Coryphantha* (syn. *Escobaria*) *vivipara* — the first wild plant that I ever collected and still one of my favorites — is great in the trough or rock garden. With good drainage, especially in the fall and spring, this Plains native is hardy from Texas to the northern tier of the Dakotas. Some of the Western subspecies have not proved to be as hardy, but they still might be worth considering for certain situations.

Being a cactus, *C. vivipara* prefers open situations with no crowding overgrowth; well-drained soil or a raised situation; and it requires little or no extra water or fertilizer. On an established plant, you can expect a crown of hot pink or magenta flowers from late spring to early summer, with the fruit ripening shortly after the first frost. The plant is easy to grow from seed with little attention other than a light covering of grit. However, if you use old seed, there exists the rare occasion in which you'll need to apply a two-week period of cold stratification.

*C.* (syn. *Escobaria*) *sulcata* (pineapple cactus) is a Texas native with large, golden yellow flowers and a reddish center that blooms sporadically from June to September. Its true hardiness has yet to be determined, though it has survived for more than five winters in my unheated, Zone 4 greenhouse. Now that we have built up the population, it will be trialed in an unprotected site in our gardens located in zones 4 and 5.

A few other hardy cacti to consider include *Pediocactus simpsonii* (mountain ball cactus), from the foothills of the Rocky Mountains; *Echinocereus viridiflorus* (nylon hedgehog cactus), ranging from the Dakotas south to Texas; and *E. reichenbachii* (lace cactus) plants from an Oklahoma source. Each has proved to be full and hardy in my Nebraska garden.

*Oenothera macrocarpa* 'Comanche Campfire' ('Comanche Campfire' evening primrose) is a unique variation of the subspecies *incana*, as far as I can determine. When we first found this plant growing in a desolate part of Oklahoma during the height of a summer drought, it was in full bloom and turgid while the other *Oenothera* that we saw were showing signs of stress, and very few were in bloom. Part of its attractiveness — other than the large, bright yellow flowers on display from late spring/early summer until frost — is its ruby stems and wavy, silver leaves. It's a warm-season plant that likes plenty of sun and heat to perform well. The variety is short-lived in the Zone 4 garden, but well worth the trouble. The only real difficulty in production arises when we try to force early spring cuttings.

If you want something with a finer texture, longer-lived and fully hardy in Zone 4, then *O. macrocarpa* subsp. *fremontii* (Fremont's evening primrose) is ideal. We grow this Nebraska/Kansas native both from seed and cuttings from a select population. The strain that we grow has finer foliage than one of the original specimens collected and described by most references. Silver to silver green leaf blades and light, bright yellow flowers from May until frost help to create seasonlong interest. Evergreen through most Nebraska winters,

the individual flowers of *O. macrocarpa* subsp. *fremontii* are a lighter yellow and a little smaller than 'Comanche Campfire'.

*O. macrocarpa* softwood cuttings are taken in late spring through early summer. Try to keep the foliage as dry as possible while still retaining turgidity — No. 1 powder or 20:1 Dip'N Gro from Dip'N Gro Inc., Clackamas, OR, should work.

*Sphaeralcea coccinea* (red false mallow) is native to the central and western Great Plains and west of the Rockies. It's a creeping groundcover topped with coral, red-orange flowers during midspring and goes nearly dormant during the height of summer, only to reappear in late summer with fresh foliage and a few sporadic flower spikes. During most winters, however, it is evergreen.

Due to the creeping stems and roots of red false mallow, a single plant can eventually form into a large colony. But, partially because of its midsummer hiatus and its short habit (less than 12 inches in my garden), it does not seem to put much pressure on its neighbors. The colony that I have — started from one individual — has yet to produce seed, meaning that it's possibly self-sterile. Propagation for red false mallow entails cuttings or division — seed has proved sporadic to germinate. Cuttings can be rooted using the same procedure as *O. macrocarpa*. However, if you want the color of red false mallow, yet something a little taller and more contained, you might consider *S. grossulariifolia* (gooseberryleaf globemallow).

*Clematis fremontii* (Fremont's leather flower) also is a Kansas/Nebraska native. This nonvining *Clematis* produces solitary, terminal blue to purple bells with a contrasting tomentose, grayish white edge above dark green foliage. This unique species blooms primarily from midspring through early summer with an occasional flower after midsummer. The best flower color is found when the nights are still cool, while midsummer blooms often appear to be washed out. This long-lived perennial may take several years to mature, but will perform for years with little attention.

Another Plains native beauty is *Liatris ligulistylis* (Rocky Mountain blazing star), which is one of the taller blazing stars. Most of the native *Liatris* — when grown in a garden situation — have a tendency to fall over when they start to bloom. While most *L. ligulistylis* also will do this if grown as a specimen plant, the strain that we currently are growing from a prairie remnant in South Dakota stands alone better than most.

The plant has a strong central stem that grows 3 to 4 feet high with an inflo-

## Propagation for Plains natives

Propagation is always a question for any plant being brought into cultivation — vegetatively or sexually. Cutting propagation on many Plains natives is slow, at best, and many naturalize easily; therefore, seed is the preferred method if possible.

Seed propagation of *Baptisia*, for example, is complicated due to a waxy, impermeable seed coat that must be pitted or removed prior to cold stratification. If the seed does not imbibe sufficient moisture, stratification will not work. From our experience, soaking clean seed in sulfuric acid for 10 to 20 minutes, followed by a double rinse and a warm-water soak, yields the most uniform seedling crop. However, you need to keep a close eye on the seed — if there's too much moisture or contaminants, the solution may heat up enough to kill the seed.

Other methods that have yielded satisfactory results without the risk of sulfuric acid include a hot-water soak for 24 hours with frequent changes, followed by cold stratification. Expect to repeat cold stratification several times to get maximum germination.

You may also try a short soak (one or two minutes) in denatured alcohol, followed by a hot-water soak. The alcohol is believed to soften or remove the waxy coat that prevents moisture from being imbibed. Be careful not to soak too long in the alcohol because it will kill the seed. All methods described require 10 to 12 weeks cold stratification at 32° to 42°.

*Clematis fremontii* is a Kansas/Nebraska native that is classified as being a nonvining *Clematis*.

*Liatris ligulistylis* is one of the taller varieties of blazing star.

rescence that makes up more than two-thirds of the overall height. In both *L. ligulistylis* and *L. aspera* (tall blazing star), the large, individual floret clusters are held away from the primary stem, giving them a unique appearance among the blazing stars. Unfortunately, the prairie remnant where the original seed was collected is now a cornfield, restricting further selection to the plants that we currently have.

**Noteworthy natives.** A few other Plains natives of interest include *Ipomoea leptophylla* — bush morning glory, old man of the prairie and man-of-the-earth are a few of its common names. *I. leptophylla* is adapted to nearly pure sand, and throughout summer, it produces deep pink to red-violet, 2-inch flowers above finely textured foliage.

Also to be considered is *Antennaria parvifolia* (small-leaf pussytoes), a small, mat-forming, silver green plant that's great for the rock garden or trough. This tough, little native can be found from the mountaintops of the Rockies to the poorest soils of the shortgrass prairies of western Nebraska and South Dakota.

As far as propagation is concerned, most prairie wildflowers — especially those producing seed in the fall — receive a two-week warm moist (72°) followed by 10 to 12 weeks of cold stratification (32° to 42°, although 32° to 36° is preferred). Repeat if necessary.

Getting Plains natives into cultivation and finding the plant you want to propagate is one thing; building a large enough population to provide sufficient seed or cuttings is another. To rely on seed or cuttings collected in the wild is risky unless you own the land — otherwise you have no control over mowing, spraying or plowing. Even the few remaining tallgrass prairies are at risk if/when the price of corn goes up. The prairie remnant where the *L. ligulistylis* seed was originally collected is an example of this point. Fortunately, most Plains natives come relatively true from seed. And seed is the preferred method when possible, unless you are propagating for a specific trait, as in 'Comanche Campfire', which features red stems, ruffled/wavy leaves and larger-than-typical flowers.

Although identifying and cultivating Great Plains natives take a bit of added attention and patience, it's a worthwhile effort. To preserve a small portion of our botanical legacy in a garden, without diminishing nature, can be very rewarding.

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